

April 3, 2019

By electronic filing

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington, D.C. 20554



Re: Written Comment and Resolution - IB Docket No. 18-313

Dear Ms. Dortch,

The United Church of Christ (UCC) is a mainline Protestant denomination and a diverse and inclusive community of faith. Its Office of Communication, Inc. is well-known to the Commission for its work in media reform.

In the early 1980s, the UCC coined the term “environmental racism” and played a key role in launching the environmental justice movement. Since then, it has steadily expanded the scope of environmental stewardship for its members, other faith traditions, and the general public.

In 2015, the UCC’s General Synod approved a resolution on Responsible Stewardship of the Outer Space Environment and became the first national religious body to call on its members to address the problem of space debris. Today churches across the country are learning about the threat debris poses to the orbital space environment and about the technological, legal, and diplomatic problems that must be solved to stem its growth.

Several years ago, a middle school student in Douglas, Massachusetts wrote to Congressman Richard Neal as part of his school’s weeklong program on “Protecting Our Place in Space.” He told him: “Everyone should help clean up outer space. Many people worry about polluting our planet with garbage and gasoline emissions. But in order to find the largest trash heap, you have to look up at space.”

As the minister spearheading the UCC’s orbital debris initiative, I would like to express sincere appreciation to the Commission for its decision to “look up at space” and conduct this proceeding. I welcome the opportunity to provide a general comment on the NPRM (Attachment 1) and to share a copy of the 2015 General Synod resolution (Attachment 2).

Sincerely yours,

A handwritten signature in purple ink that reads 'Robert Bachelder'.

Rev. Robert Bachelder
United Church of Christ
robertbachelder48@gmail.com

Attachment 1

Comment

Government experts and industry representatives are better suited than religious leaders to offer detailed advice about rulemaking. However, I would like to affirm the Commission's general approach to the subject from a social-ethical perspective and then urge the Commission to exploit additional opportunities for rulemaking that may arise during this proceeding because of the growing receptiveness of industry thought leaders to sensible regulation.

It is widely accepted by church leaders and social ethicists that human progress in the economic domain entails the gradual recognition of and response to the "tragedy of the commons." Therefore, the Commission's recognition that the earth orbital region of space is an economic commons and "subject to exploitation by individuals in a manner that is unsustainable" is most welcome. It provides an ideal conceptual framework for analyzing regulatory impact.

Moreover, the Commission's strategic intention to foster a "coordinated, effective regulatory environment to meet the dual goals of orbital debris mitigation and furthering U.S. space commerce" (NPRM para. 14) is a fitting response to the tragedy of the commons scenario developing in space. The market has an important place in space but it also needs to be kept in its place with sensible regulation.

Because the market is the most efficient instrument we have for utilizing resources and responding to material needs, regulators are right to promote a strong commercial space sector. Society benefits from the best new applications in telecommunications and Earth observation, most of which are coming from private companies.

We also should heed a warning from Professor Moriba Jah, a space debris expert at the University of Texas in Austin, who thinks we can learn a valuable lesson from the early history of mining in the United States. That industry harmed the natural environment and led to the loss of human life because government was slow to regulate its activities. We are going to repeat this history in space, Jah says, unless we adopt rules to foster responsible stewardship of the space environment.

The challenge for the Commission is to put in place optimal oversight functions and rules for helping companies create market value and economic well-being in an environmentally sound way that does not preclude future generations from doing the same. In 2004, the Commission handled this challenge adroitly and took an important step toward establishing an effective regulatory environment. It required GSO operators to maneuver their satellites into graveyard orbits at the end of their missions, even though such maneuvers require operators to bear additional fuel costs. The Commission concluded such additional costs were necessary to "preserve the public interest in minimizing the hazard posed by orbital debris to the continued safe and reliable use of the GSO region." (NPRM para. 48)

Subsequent experience justifies the Commission's skepticism about the utility of certain mitigation guidelines that rely on voluntary compliance. In the case of the 25-year guideline for de-orbiting spent satellites from LEO, for example, voluntary compliance continues to hover around 40-60%. This rate is too low to stem the growth of debris, according to experts.

Now the Commission is considering new rules that would promote long term sustainability of LEO at a time when the commercial satellite industry is experiencing astronomical growth. Especially important is a proposed rule requiring applicants to certify that satellites they plan to operate at altitudes of 650 km or above will be deployed initially at altitudes below 650 km in order to test their functionality. As the Commission suggests, the benefits from the continued viability of LEO would outweigh the costs of orbit-raising.

I urge the Commission to exploit additional opportunities for rulemaking that may arise during this proceeding. It should try to capitalize on the growing receptiveness of industry thought leaders to sensible regulation.

In a recent op-ed for *SpaceNews*, for example, authors Timothy Maclay from OneWeb, Walt Everetts from Iridium, and Doug Engelhardt from Digital Globe say “it’s time for thoughtful regulation.” They call for codification of “limited, sensible protections for our orbital environment.” (*Responsible satellite operations in the era of large constellations*; January 23, 2019)

Using a 400-kilometer altitude as a breakpoint, the authors maintain that operators should “share their position predictions and maneuvering plans with data aggregators and other stakeholders to support conjunction assessments.” They say spacecraft should be “equipped with effective maneuvering capabilities to respond to high-probability collisions.” They also propose five years instead of 25 as “a reasonable upper limit” for de-orbiting zombie satellites from LEO, noting the additional costs would be minor. Moreover, the authors pledge their companies’ best efforts to promote environmentally sound policies in their own practices and they invite other industry stakeholders to join them.

These measures go beyond what the NPRM envisions at key points and would be most welcome. They are critical for implementing the three basic principles of space safety articulated by Commissioner Rosenworcel. She says that everything that goes up in space should be trackable; everything we put in space should be drivable; and what goes up must come down. (Statement of Commissioner Jessica Rosenworcel re: IB Docket No. 18-313)

The evolving outlook of industry thought leaders, which couples openness to sensible regulation with enhanced attention to company practices, bodes well for the development of an effective regulatory environment that combines governmental regulation and industry self-governance.

In such a framework, the Commission and other regulatory bodies would identify market-friendly ways to incorporate the full set of environmental costs and social benefits in the market price of space-based goods and services. They would ensure that burdens and costs were applied fairly to create a level playing field for companies. They also would be mindful that while market forces alone are usually inadequate to the task of environmental protection, they often produce more innovative and less costly solutions to environmental problems when they do work.

For their part, private companies would voluntarily find ways to minimize the debris created by their operations. Where this puts them at a competitive disadvantage, they would advocate with other companies for coordination and standardization of best practices. Perhaps most important, they would actively support the development of sound governmental regulation that protects the space environment while ensuring a level playing field for businesses.

It seems fitting for the Commission to engage in rulemaking during this 50th anniversary year of the Apollo 11 moon landing. A brief look back at Space Age history may help to put the Commission's effort in perspective and underscore its significance.

In 1969, a national magazine asked famous Americans what they thought Neil Armstrong should say when he stepped onto the moon's surface. Isaac Asimov, the dean of science fiction writers, gave a good answer: "Goddard, we are here."

Robert Goddard, a physics professor at Clark University in Worcester, Massachusetts, wrote a groundbreaking study of rocket propulsion and space flight in 1919, contending it was possible to build a rocket that could reach the moon. He was widely derided at the time. The New York Times said he failed to grasp Newtonian physics and that even high school students knew you couldn't fly a rocket through a vacuum.

Undeterred, Goddard continued his research and went on to launch the world's first liquid-fueled rocket in 1926, watching it rise forty-one feet. The short flight, lasting all of two and one-half-seconds, was long enough to open the world's door to the Space Age.

The question today is whether we will take action in a timely manner to keep the door open or permit it to close as key orbits become congested with debris. It took a visionary scientist such as Robert Goddard to open the door to space. Now it is going to take the best efforts of visionary public servants to keep it open.

Attachment 2

General Synod Resolution

RESPONSIBLE STEWARDSHIP OF THE OUTER SPACE ENVIRONMENT

Approved As Amended

United Church of Christ, General Synod 30

June 30, 2015

A Resolution of Witness

TEXT OF THE MOTION

WHEREAS previous General Synods of the United Church of Christ have acknowledged humanity's moral obligation to be faithful stewards of God's creation; and

WHEREAS the United Church of Christ's pastoral letter on faith and science provides a theological basis for enlarging our ethical perspective on creation to incorporate outer space; and

WHEREAS a sustainable space environment is necessary for many activities essential to human flourishing; and

WHEREAS the long-term sustainability of the space environment is at risk from space debris and irresponsible conduct; and

WHEREAS timely action is required to stabilize the space environment, particularly low Earth orbit...

THEREFORE, BE IT RESOLVED that the thirtieth General Synod of the United Church of Christ praises God for the majesty, mystery and complexity of the whole of creation, from the Earth to the outer reaches of the universe, and acknowledges human responsibility for the stewardship of planet Earth, its ecosystems, and the larger cosmological systems of which it is a part.

BE IT FURTHER RESOLVED that the Thirtieth General Synod of the United Church of Christ expresses its concern about the pollution and degradation of the outer space environment and its dangerous implications for humanity and all of God's creation;

BE IT FURTHER RESOLVED that the Thirtieth General Synod of the United Church of Christ requests that Justice and Witness Ministries recommend educational materials for the churches on the subject of outer space sustainability;

BE IT FURTHER RESOLVED that the Thirtieth General Synod of the United Church of Christ requests that educational materials recommended by Justice and Witness Ministries be presented to the Thirty- First General Synod with suggestions for how the United Church of Christ might undertake various forms of action;

BE IT FURTHER RESOLVED THAT the Thirtieth General Synod of the United Church of Christ requests that Justice and Witness Ministries send copies of this resolution and supporting materials to its global, ecumenical, interfaith, and civil society partners and invite them to join the United Church of Christ in its efforts to promote outer space sustainability;

BE IT FURTHER RESOLVED THAT the Thirtieth General Synod of the United Church of Christ calls upon the members of the United Church of Christ to educate themselves on this issue and advocate with members of Congress to adequately fund NASA to lead the nations of the world in working together to reduce the volume of debris in low Earth orbit;

BE IT FINALLY RESOLVED THAT the Thirtieth General Synod of the United Church of Christ expresses its support for efforts by the United States and other nations to negotiate international agreements that encourage responsible behavior in space.

FUNDING

Funding for the implementation of this Resolution will be made in accordance with the overall mandates of the affected agencies and the funds available.

IMPLEMENTATION

The Officers of the Church, in consultation with appropriate ministries or other entities within the United Church of Christ, will determine the implementing body.